

Having described the invention, the following is claimed:

1. An injection lance for use in a metallurgical operation, the injection lance comprising:

at least one body section having a first center pipe and a first refractory shell surrounding the first center pipe;

an end section having a second center pipe and a second refractory shell, said end section joined to at least one of said body sections, wherein at least a portion of at least one of the first and second refractory shells is formed of a refractory composition that is isopressed.

2. An injection lance according to claim 1, wherein said refractory composition includes carbon.

3. An injection lance according to claim 2, wherein said carbon is 1% to 25% of said refractory composition, by weight.

4. An injection lance according to claim 2, wherein said carbon is selected from the group consisting of: carbon black, graphite, silicon carbide, powdered pitches and combinations thereof.

5. An injection lance according to claim 1, wherein said refractory composition includes a refractory material selected from the group consisting of: alumina (Al_2O_3), magnesium oxide (MgO), silica (SiO_2), zirconium oxide (ZrO_2), spinel ($\text{MgO} \cdot \text{Al}_2\text{O}_3$) and combinations thereof.

6. An injection lance according to claim 5, wherein said refractory material is 65% to 99% of said refractory composition, by weight.

7. An injection lance according to claim 5, wherein said alumina is selected from the group consisting of: tabular alumina, white fused alumina, brown fused alumina, bauxite and combinations thereof.

8. An injection lance according to claim 1, wherein said refractory composition includes an antioxidant.
9. An injection lance according to claim 8, wherein said antioxidant is 0% to 15% of said refractory composition, by weight.
10. An injection lance according to claim 8, wherein said antioxidant is selected from the group consisting of: magnesium, aluminum, silicon, boron carbide, elemental boron, other boron-containing compounds, and combinations thereof.
11. An injection lance according to claim 1, wherein said refractory composition includes a resin binder.
12. An injection lance according to claim 11, wherein said resin binder is selected from the group consisting of: phenolic resin, resorcinol-formaldehyde resin, epoxy resin, polyvinyl chloride, furan resins, urea-formaldehyde resins, polyurethane resins, silicone resins, polyacrylic resins, vinylacetate resins, polyamine resins, polybutadiene resins and combinations thereof.
13. An injection lance according to claim 1, wherein said refractory composition includes an additive selected from the group consisting of: metallic and non-oxide powders and aggregates, and metal, organic and carbon fibers.
14. An injection lance according to claim 1, wherein said injection lance includes a plurality of body sections, wherein said plurality of body sections are joined together.
15. An injection lance according to claim 1, wherein said end section includes a nozzle assembly comprising a porous nozzle tip.
16. An injection lance according to claim 15, wherein said nozzle assembly further comprises a pipe extending from said porous nozzle tip, said second center pipe dimensioned to receive said pipe.

17. An injection lance according to claim 15, wherein said end section includes a plurality of rods radially disposed around said second center pipe, each said rod including a portion spaced from said second center pipe, said rods dimensioned to capture said porous nozzle tip.
18. An injection lance according to claim 1, wherein said end section has an opening defining an open-ended tip.
19. An injection lance according to claim 1, wherein at least a portion of at least one of the first and second refractory shells is formed of a castable refractory material.